# Homework 4

The source code for this assignment must be submitted electronically using the Canvas course website by 6 pm on Monday, November 5.

1. Add the following member variables to the `Complex` class (Fig. L 8.7) after completing Lab Exercise 3 from chapter 8.

| Field | Summary |
|-------|---------|
| I | The complex number (0,1) |
| ONE | The complex number (1,0) |
| ZERO | The complex number (0,0) |

2. Add *set* and *get* methods for the member variables `real` and `imaginary`.

3. Add the following methods to the `Complex` class.

| Method Name | Return Type | Description |
|-------------|-------------|-------------|
| abs | double | Return the absolute value of a Complex number (aka, modulus or magnitude) |
| arg | double | Return the argument of a Complex number (aka, phase or angle) |
| conjugate | Complex | Return the complex conjugate of a Complex number |
| divide | Complex | Divide two Complex numbers |
| equals | boolean | Returns true if the real and imaginary parts of obj and `this` are equal |
| fromPolar | Complex | Create a Complex number from polar form |
| multiply | Complex | Multiply two Complex numbers |
| toPolarString | String | Return String representation of a Complex number in Polar Form |

4. Modify the `ComplexTest` class (Fig. L 8.8) to test all of the new members in the `Complex` class.